

tunities permit, he borrows and applies its ideal and idealising truths to give the results of his works depth and stability for inner consciousness. To illustrate the truth of the foregoing statements by means of a concrete case, let us take the most interesting and fruitful of the concepts advanced and applied by "science" in the present age, *i.e.*, of "evolution." The very clearest exhibition possible of the nature of evolution is, it would seem, to be found in the process by which (as shown in the present work) thought by an inherent, natural tendency unfolds from a germ which is simplicity itself to the highest degree of complexity or concreteness. Indeed, the concept of an evolving activity, an activity continually repeating itself in successively higher powers, each of which preserves in itself the essential virtue of the one preceding, is an ideal, not an empirical, notion, an object of pure, speculative thought rather than anything that can actually be found (except as "put there") in the external world as such. It would seem, therefore, that natural science, to complete its own work, to secure its own complete evolution, in fact, must take into itself, or, rather, be sublated into, the science of thought; the result being, not indeed the pure science of thought or logic, but rather philosophy in a concreter form. Again—to take another concrete case—natural science, at least as cultivated at the present day, assumes, or tends to assume, that it is true to its ideal, and to the ideal generally, in proportion as it is able to explain the world of external existences in mathematical terms; it, therefore, tries to reduce dynamical or chemical, and even biological truth to mechanical, and thereby to mathematical truth. Now, whatever the convenience there may be in being able to apply mathematical calculation to chemical and biological phenomena, it is, to the student of the categories as such, certain that there is a kind of un-

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PREFATORY ESSAY.

IN all discourse, or verbal expression of thought, there regularly occur, besides terms representing mere objects or groups or classes of objects, terms which, instead, stand for general notions, originating within rather than from without, predicates and relations under which, for the mind, objects stand or by which they are determined—that is to say, the so-called categories of thought. Such terms are, for example, *being*, *quantity*, *essence*, *cause*, *actuality*, *end*, *truth*, with their primitives or derivatives. The general notions for which such terms stand are of very great significance and interest, not only as forming the ground of definite connection, in consciousness, among objects, but also as together constituting a world of realities of themselves.

That these notions have a necessary reality and meaning in experience, and so are a possible matter for a real science, is *practically* evident from the fact that they are indispensable to thinking and discourse as such, to objective or fixed coherence among ideas, to knowledge or science: the very forms of language necessarily imply them, and for this reason, if for no other, they are, since language is but the embodiment and instrument of thought in general, indispensable to thought itself; and the sciences, as the embodiment of ideas of definite and necessary connections

among objects, continually involve them, so that it may with entire truth be said that any science is really and truly a science in proportion to the (indirect) recognition which the categories receive in it. And for the matter of that—it is worthy of being observed in passing—the products of mere fancy could not exist without a certain basis in the categories.

The *theoretical* proof of the necessity, reality and great significance of the categories has to be given by a special science which takes precisely them for its subject-matter. The recognition which the sciences in general give to the categories, is, for the greater part, merely practical and indirect, not theoretical and direct. Even the sciences of discourse—grammar, philology, rhetoric, formal logic—though containing very distinct implications of the categories as something distinguishable from a given material in which, speaking roughly, they are, so to say, immersed, and bringing to clear consciousness the necessity of studying the categories in and for themselves, do not undertake so to study them, to investigate their (logical) origin, necessity, validity, organic relations, and groupings—in short, to “criticise” the categories as such. Still less is this study undertaken by the sciences whose subject-matter is the external world rather than discourse or thought itself. Such study, investigation, criticism, is, let it be repeated, the task of a distinct science, the science, in fact, of science as such, namely, Philosophy, and, in particular, the fundamental part of it, Logic.

Now a complete understanding of the nature of Logic is, of course, not possible at the threshold of the science, but must be gained by the study of it in its entirety. But a certain preliminary notion of it is necessary and may here be laid down. Let, then, Logic be provisionally defined as, *par excellence*, the

criticism of the categories. Criticism may be of two sorts: it may be merely or mostly analytical, restrictive, negative, formal; or it may be synthetical, developmental, positive, real. Criticism of the first-named sort is content to assume its object as given, isolate, scrutinize closely enough merely to detect its limitations without always positively and directly supplying the proper complement for the overcoming of the limitations; and instead of allowing its object to be determined for thought by its natural relations, is apt to judge it according to a standard lying too much outside itself, and hence to be formal rather than real. Of this nature is, to cite an example, in a measure the Kantian criticism of the categories, in spite of the search for synthetic truth by which that criticism was motivated. That criticism was in great part an effort to prevent the (mis)application of the categories beyond a restricted sphere, to keep "human" thought within certain secure bounds. It assumed the categories as logical facts, analysed them, treating as distinct and opposed certain of them which had real meaning and truth only in organic reference to one another, and in consequence reached the essentially negative result that "human thought" is fatally self-contradictory as regards ultimate reality, that there is or may be a realm beyond the reach of thought, an unknowable "thing-in-itself," and that the laws of thought are in relation to it merely regulative. But criticism, to be adequate to its object, must be more than the Kantian criticism or anything else of its kind. The categories must be viewed as in organic relation to one another and to all possible or conceivable matter of thought. The discovery of the limitations of the categories taken either individually or as groups must also be the discovery of what is complementary to them; each category, instead of being assumed as given, must be

known in its origin in a logically preceding one, and its transition into a logically succeeding one, and the categories collectively must be seen as a system of predicates in organic relation to a subject to which they apply and give determination and meaning. The true criticism of the categories is their self-criticism, their spontaneous self-limitation and self-sublation into higher truth, their evolution in a series or system. It is thus the affirmation as well as the negation of the categories; a criticism, indeed, which contains as a factor a certain measure of dogmatism. Such is the general nature of the logical criticism of the categories. From this it is necessary to distinguish strictly the "psychological" criticism which occupies itself with the determination of the temporal order in which, and the circumstances under which, they make their entrance into the individual consciousness as such in its relations with environment. The meaning of a category in itself and in relation to other categories as such is not identical with its meaning in and for the merely individual mind. Logic, then, is the solution of the problem of the evolution of the categories—is itself this evolution. This solution, as having to do solely with activities or objects of pure thought, is itself a work of pure thought, and, naturally, proceeds according to the method of that which is determined from within rather than from without, or is self-determined. Beginning with the lowest, simplest, most abstract form of thought, it proceeds by a gradual development to the highest, most complex, most concrete, thereby discovering or rather evolving the series or system of pure forms of thought or the categories. (See below § 20.)

For the sake of as full as possible a preliminary notion of the nature and importance of the Science of Logic, we may here consider, very briefly, its relation

to the sciences in the more common acceptation of the term. These sciences, whether consciously or not, assume as a fact the general *rationality* of the world of existing things, and their task is the working out or verification of this assumption. Now it is almost a mere truism to say that to the complete realisation of this assumption made by science the conscious understanding of what the rational, as such is, is indispensable. But the knowledge of the rational as such is precisely what Logic is; therefore the cultivation of the sciences, to be sound and truly successful, must be coupled with that of Logic. It has sometimes been supposed, not unnaturally, perhaps, that the science of thought as such is empty and barren, and should be—in fact, really has been—superseded, for really active intelligence, by a new form of thought, *viz.*, natural science—possessing a rich and valuable content. But the judicious will guard against being too sanguine in belief as to the value of the content of the new form of thought taken merely by itself, or in entire abstraction from that which it is supposed to have superseded. There is more than one sort of emptiness and barrenness; pure sense-knowledge, or mere experience, is quite as barren and empty as pure thought, or mere speculation, can be. And science as the work of observation, experiment, and formal inference must, to maintain its interest for, and have a real claim upon, the mind of man in its full integrity, become distinctly congruent with and expressive of the essence of pure, self-active thought. The final interpretation and valuation of the results reached in the sciences is not possible within the limits of the natural sciences as such, but must depend upon the co-operation of the science of thought as such. No thoroughly intelligent devotee of science, commonly so-called, thinks of the science of thought as empty and lifeless; he knows better, and, as his limited oppor-
